

Application No.: 10/017,847  
 Examiner: Leroy, David H.; Art Unit: 1742  
 AMENDMENT NO. 2, Reply to Office Action of May 29, 2003

The following is a complete set of the claims for this patent application, replacing all prior versions.

**Claims:**

1 Claim 1 (currently amended): An alloy carbon steel comprising iron and a maximum of  
 2 0.35% by weight of carbon, said alloy carbon steel having a triple-phase microstructure  
 3 comprising ferrite crystals fused with martensite-austenite crystals, said crystals having  
 4 grain sizes within the range of about 2 microns to about 100 microns, said martensite-  
 5 austenite crystals comprising laths of martensite alternating with thin films of austenite,  
 6 said martensite-austenite crystals ~~austenite and~~ constituting from about 5% to about 95%  
 7 by weight of said triple-phase microstructure, and said martensite-austenite crystals  
 8 devoid of carbide precipitates at interfaces between phases.

1 Claims 2-3 (canceled)

1 Claim 4 (original): An alloy carbon steel in accordance with claim 1 in which said  
 2 martensite-austenite crystals constitute from about 15% to about 60% by weight of said  
 3 triple-phase microstructure.

1 Claim 5 (original): An alloy carbon steel in accordance with claim 1 in which said  
 2 martensite-austenite crystals constitute from about 20% to about 40% by weight of said  
 3 triple-phase microstructure.

1 Claim 6 (original): An alloy carbon steel in accordance with claim 1 in which said  
 2 carbon constitutes from about 0.01% to about 0.35% by weight of said triple-phase  
 3 microstructure.

1 Claim 7 (original): An alloy carbon steel in accordance with claim 1 in which said  
 2 carbon constitutes from about 0.03% to about 0.3% by weight of said triple-phase  
 3 microstructure.

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1 Claim 8 (original): An alloy carbon steel in accordance with claim 1 in which said  
2 carbon constitutes from about 0.05% to about 0.2% by weight of said triple-phase  
3 microstructure.

1 Claim 9 (original): An alloy carbon steel in accordance with claim 1 further comprising  
2 silicon at a concentration of from about 0.1% to about 3% by weight of said alloy  
3 composition.

1 Claim 10 (original): An alloy carbon steel in accordance with claim 1 further comprising  
2 silicon at a concentration of from about 1% to about 2.5% by weight of said alloy  
3 composition.

1 Claim 11 (original): An alloy carbon steel in accordance with claim 1 in which said  
2 carbon constitutes from about 0.03% to about 0.3% by weight of said triple-phase  
3 microstructure, said alloy carbon steel further comprising silicon at a concentration of  
4 from about 0.1% to about 3% by weight of said alloy composition.

1 Claim 12 (original): An alloy carbon steel in accordance with claim 1 in which said  
2 carbon constitutes from about 0.05% to about 0.2% by weight of said triple-phase  
3 microstructure, said alloy carbon steel further comprising silicon at a concentration of  
4 from about 1% to about 2.5% by weight of said alloy composition, and containing  
5 substantially no carbides.

1 Claims 13-22 (withdrawn)

1 Claim 23 (new): An alloy carbon steel in accordance with claim 1 in which grain sizes  
2 are within the range of about 5 microns to about 30 microns.